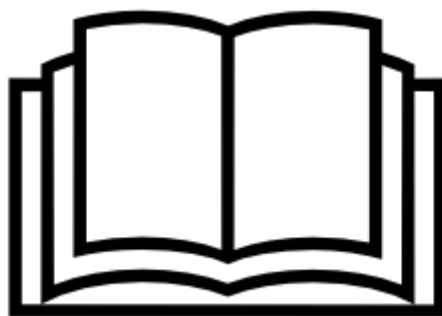


## Marco Beverage Systems Ltd.

Service



Manual

# Uber Boiler

Part/Model Number: 1000680# 1000681  
 (where # is a suffix of one or more alphanumeric characters)

## INCORPORATING SOFTWARE 1.10

**Water pressure : 5 - 50 psi (min.-max.)35 - 345 kPa (min.-max.)**

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## 1.1 UNIT INSTALLATION INFORMATION

### 1.1.1 Safety:

- Risk of scalding. Beware of accidentally operating the water drawoff dial or push buttons especially when cleaning. If the dial is left in the ON position (shown later) then pressing boost will cause water to flow immediately from the font.
- This appliance must be earthed. If the plug supplied is not used then ensure that the green/yellow cable is connected to a suitable earth.
- Risk of flooding – inlet hose. The hose supplied with this unit is non-toxic food quality tested to 190psi. However, a hose is not a permanent connection. It is, therefore, advisable to switch off boiler and close the stopcock valve when boiler is not in use, e.g. overnight, weekends etc.
- Risk of flooding – overflow hose. Water spilling in the scale platform area will run down a waste tube which should be plumbed –this is not intended to be used as a dedicated drain facility. If a waste bucket is used it risks overfilling.
- The utmost care has been taken in the manufacture and testing of this unit. Failure to install, maintain and / or operate this boiler according to the manufacturer's instructions may result in conditions that can cause injury or damage to property. If in any doubt about the serviceability of the boiler always contact the manufacturer or your own supplier for advice.
- Children should be supervised to ensure that they do not play with the appliance
- In the event any wires are damaged, such wires can only be replaced by experts or professional afterservice staff from the manufacturer, afterservice department or similar function departments.

### 1.1.2 Installation Details:

#### Electrical installation:

- Electrical specification: 2.8kW-230V-50Hz
- The electrical power supply must be connected in accordance with the applicable regulations of the country of installation.

#### Plumbing installation procedure:

- Mains water pressure required (limits): 5-50psi (35-345kPa)
- Fit a stop Valve on a cold water line and attach a 3/4" BSP male fitting, (e.g. 3/4" x 1/2" 311 or washing machine type stop valve).
- For US versions use 3/8" NPT male fitting.
- Connect straight tailpiece of the hose to the stop valve fitting. Make sure that the pre-attached sealing washer is fitted.
- Turn on the water to flush any impurities, dust etc from the inlet hose and water pipe. Allow several gallons through.



- Connect right-angled tailpiece of the hose to the inlet valve of the boiler (3/4" BSP). Make sure the sealing washer is fitted here also.
- Turn on water and check for leaks.

### 1.1.3 Cleaning:

The exterior of these machines may be cleaned with a damp cloth and a light detergent. Do not use abrasive cloths or creams, as this will spoil the finish of the machine. Do not use a water jet or spray.

**NB:** To avoid the possibility of accidentally operating the Font Dial or buttons when cleaning the front of the machine, switch the unit off using the switch at the bottom of the unit.

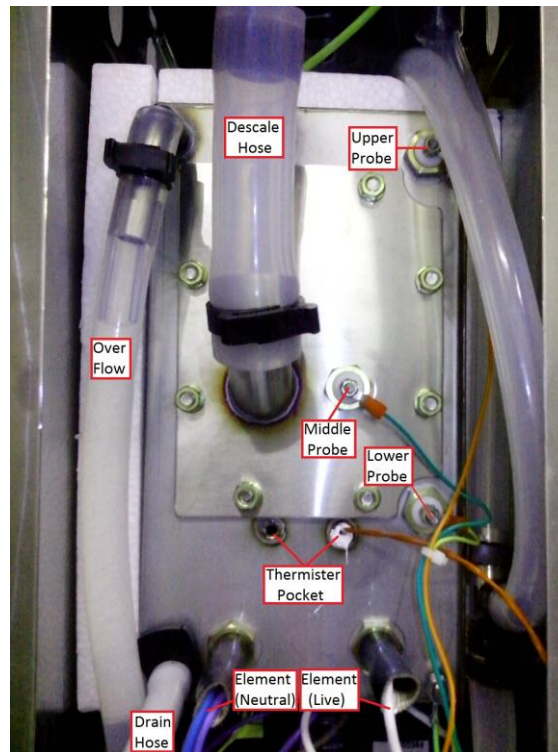
### 1.1.4 Limescale:

In common with all water boiler manufacturers, service calls resulting from limescale are not covered by warranty. Fitting a scale reducer or in-line filter is recommended, especially in hard water areas. This can reduce the build-up of scale but may not stop it altogether. The frequency that descaling is required depends on the local water supply; hard water areas need more attention. Descaling of the machine should ideally be carried out by qualified service personnel.

#### Descaling Instructions

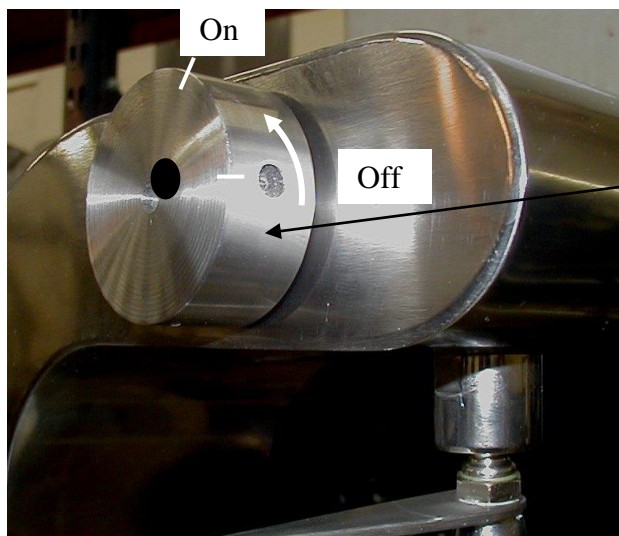
Descal agents/solution should be added to the Tank via the large tube as shown in photo below. Follow the descale agent instructions.

- Bring the Uber Boiler up to temperature and allow to fill and heat until Prime Ready Full is shown on the screen.
- Turn off the water supply to the Uber Boiler.
- Mix a concentrated descale solution for a 6 litre tank, according to the instructions on the descaler container.
- Press the Boost button and dispense water equal to the volume of the concentrated descale solution.
- Add the concentrated descale solution via the descale hose on the front of the tank and continue to follow usage instructions on the descaler container.
- Allow the descale solution to recirculate in Boost mode two or three times during the recommended descale time, normally 30 minutes.
- Drain the descale solution from the tank using the drain hose.
- Turn the water on and thoroughly flush the tank, taking care to use Boost mode to flush the pump and font plumbing, also.
- Operate Uber Boiler as normal.



### 1.1.5 Precautions:

- NEVER lift or lower the unit by holding the front!—use the upper wide tile or lift from the base.
- The unit requires a counter thick enough to support the weight of the machine when full, when full it could be up to 30kg in total.
- Never overload the scale platform with a force greater than 9kg.
- Ensure the flow control dial is in the OFF position as shown below.

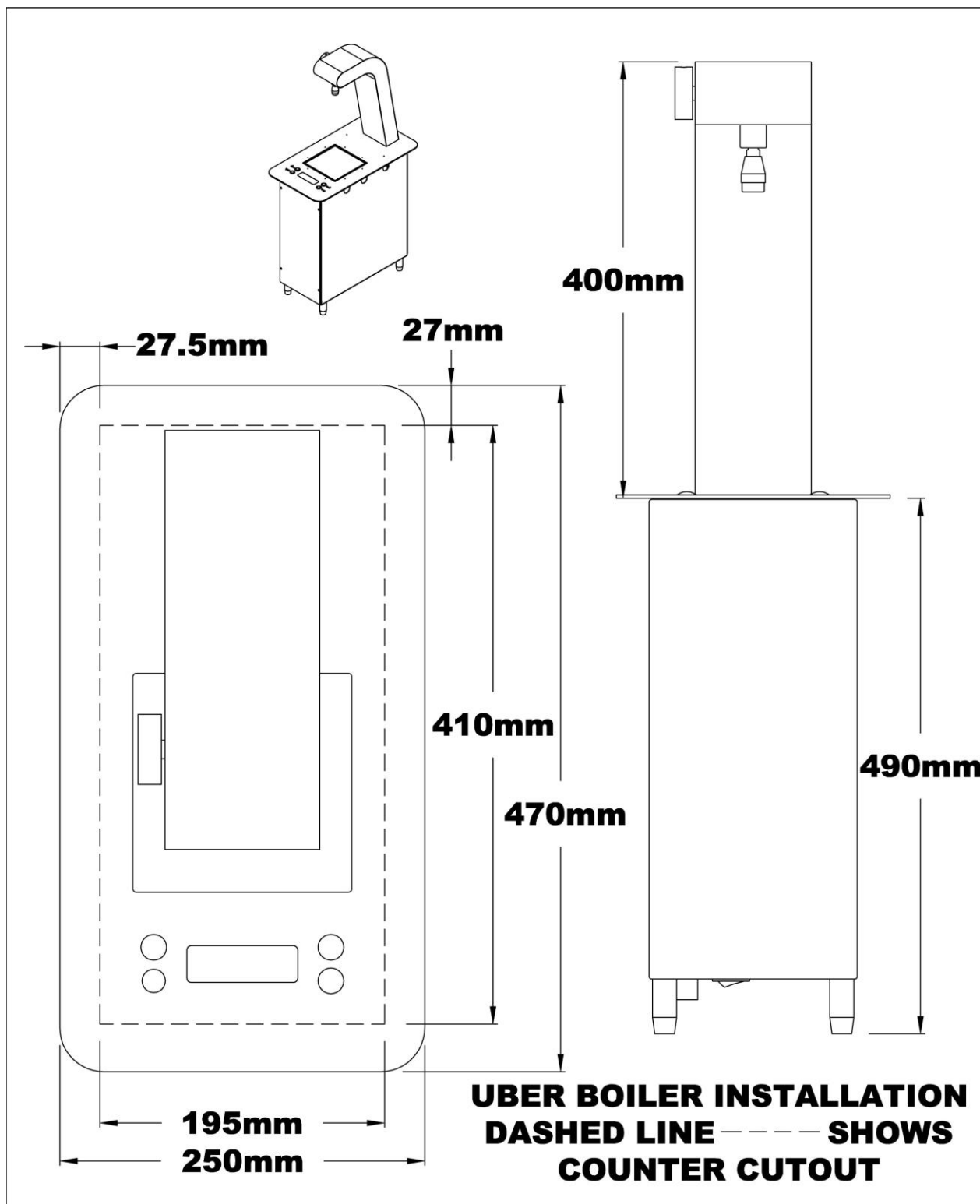


The Font Dial operates anticlockwise to begin the flow of water.



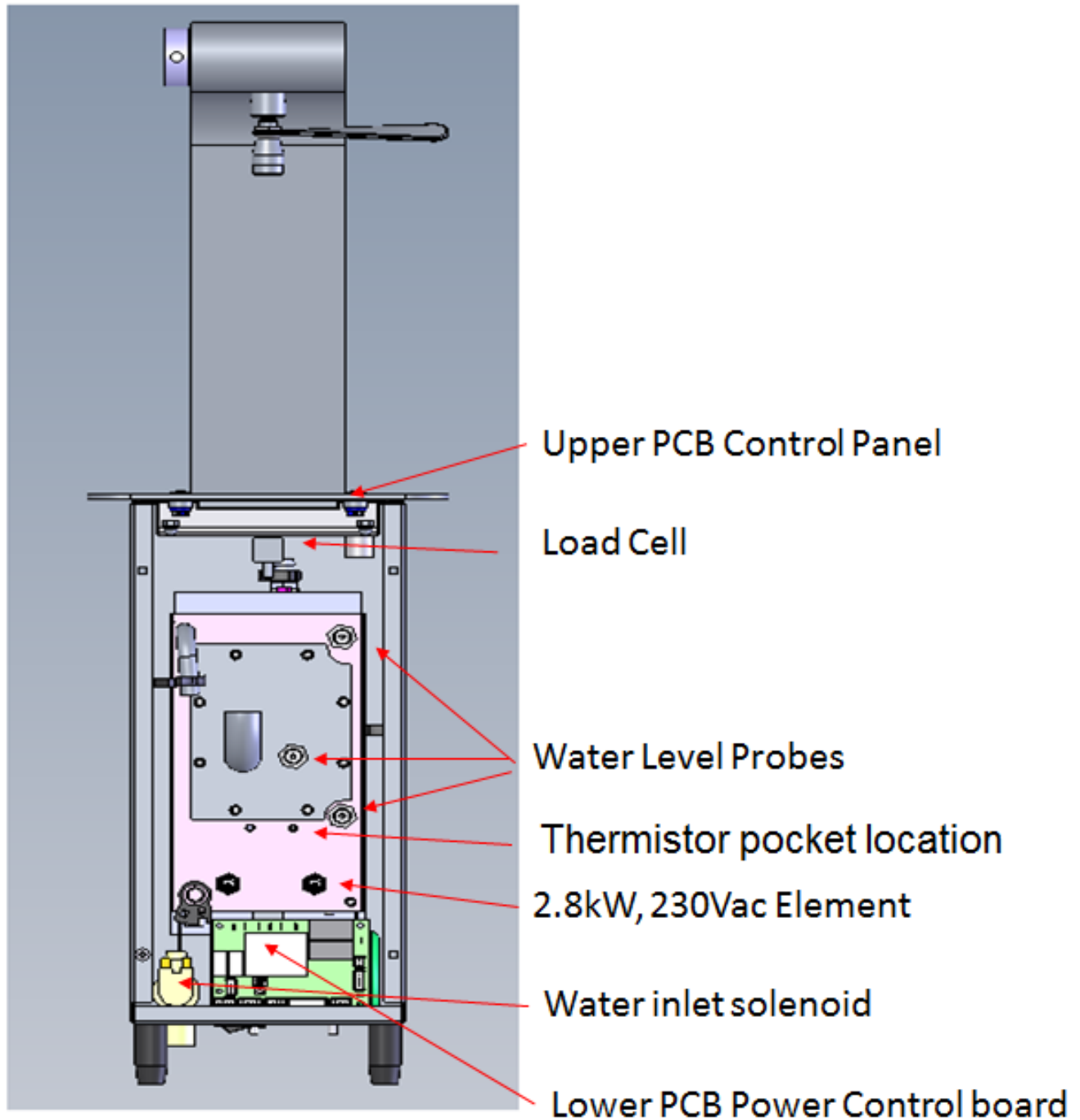
- Check the dimensions shown for the counter cutout and the upper tile. Leave adequate clearance on your counter top and check the space below the counter/cabinet to ensure there is enough room.
- Cut out the counter top to be 410x195mm. This dimension includes clearance/tolerance space for the lower part of the machine (the actual machine is approx 405x190mm). The full dimensions are shown on the following page.
- Hold the machine by the tile and slowly lower it down into the cutout. It is advisable to wear thick work gloves. A second person may be needed to hold the machine at the bottom. Be careful not to trap fingers under the tile as it is lowered.
- The weight of the machine when filled should be enough to ensure it does not move. If further fixing is required, silicone can be used to stick the tile to the counter. However, it is advisable to leave the machine free to be taken out for servicing.

### 1.1.6 Installation Template:

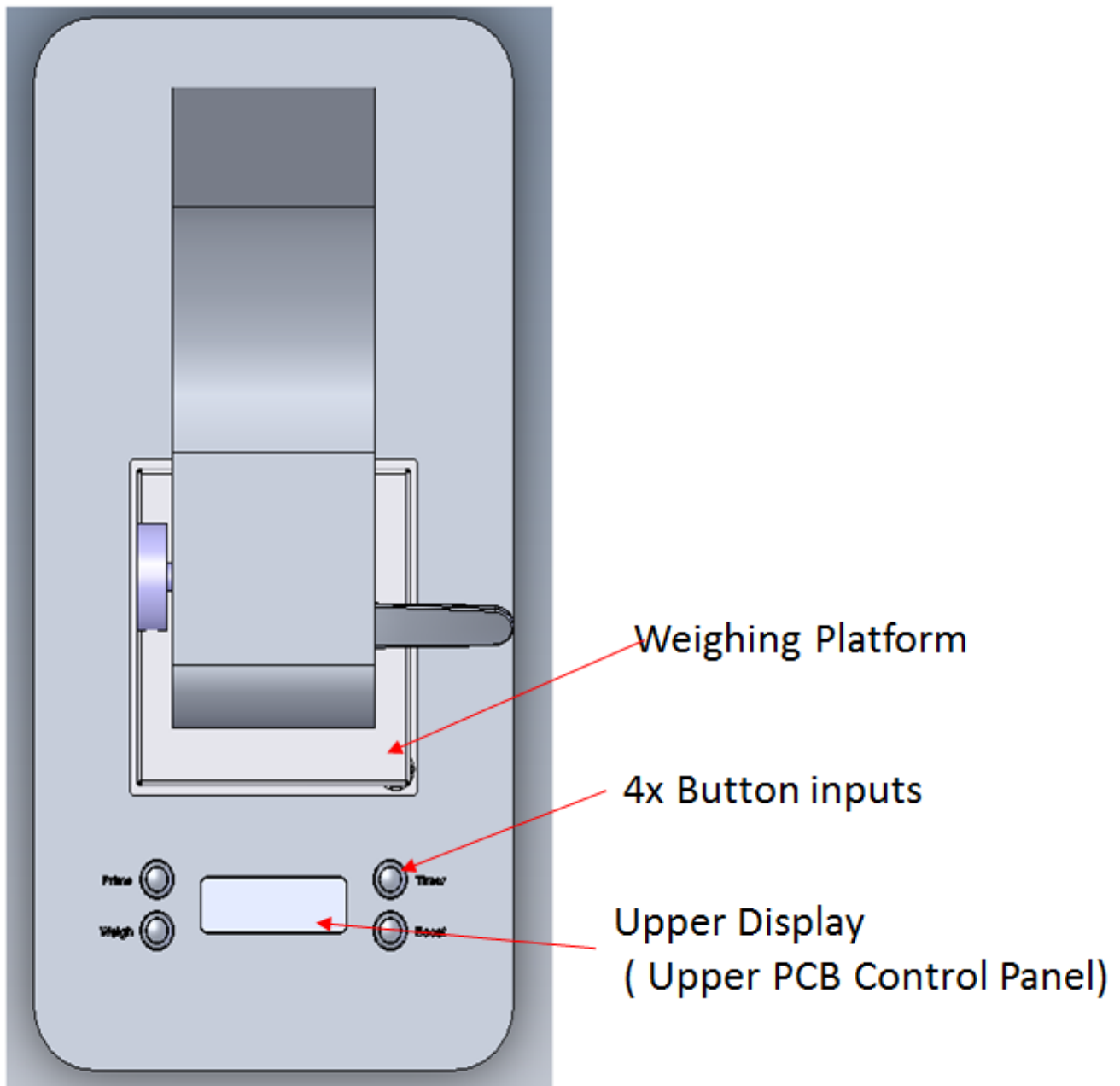




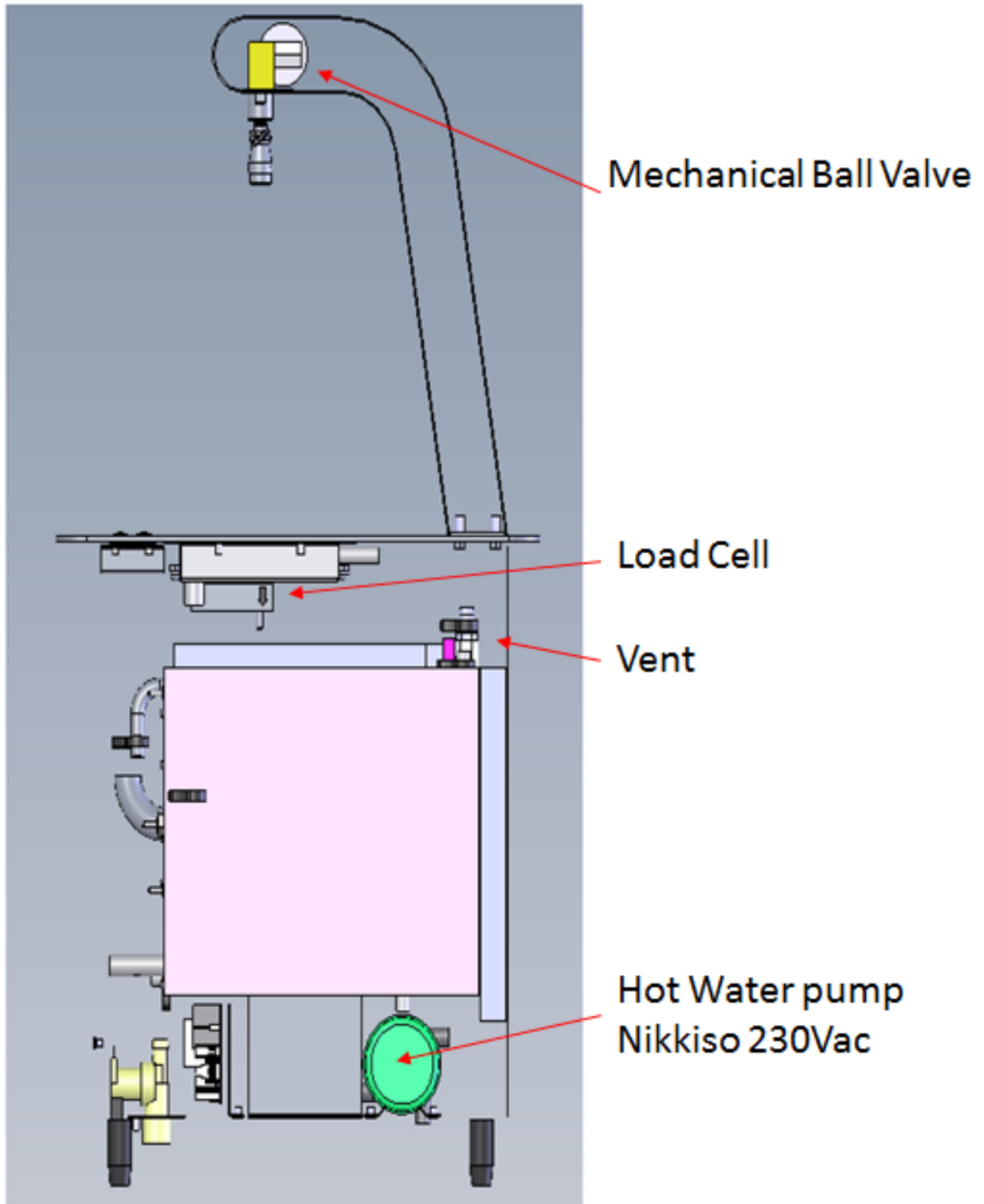
## Uber Boiler – Front View



## Uber Boiler – Top View



## Uber Boiler – Side View





## 2.1 PRINCIPLE OF OPERATION

- The Uber Boiler is designed to be a highly accurate hot water delivery system. This temperature accuracy is achieved by several features;
  - In stand-by the water is maintained at a set temperature [Prime Mode] This is controlled via a thermistor in the tank
  - In [Boost Mode] the hot water is circulated through the FONT (to reduce any temperature loss)
    - a second thermistor located in the FONT is now used to control the temperature of the water and therefore ensure the accuracy of the delivered water
    - a specialised software algorithm **APLogic™** is used to control the temperature within +/- 0.2°C,

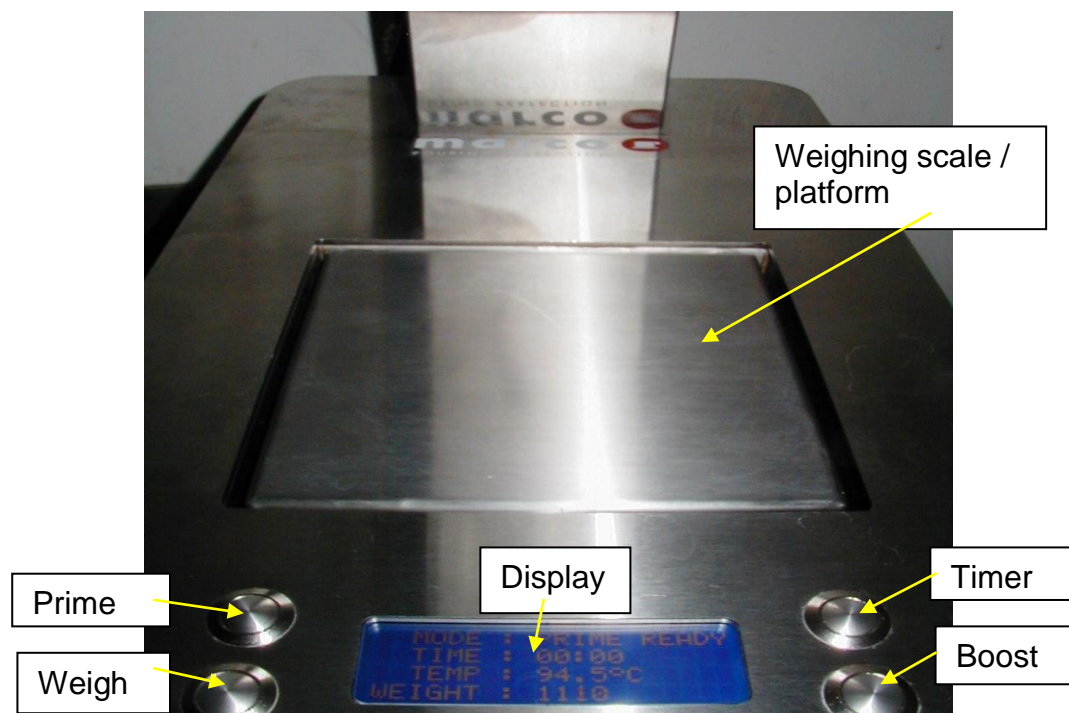
### 2.1.1 Simplified Operation:

1. The unit is preset to a Prime Temperature at the factory (this may be changed by the user). This is the stand-by mode and the temperature is displayed on the display panel as Tank Temp.
2. The user presses the Boost button and holds this button down until the desired set temperature is displayed on the display panel.
3. The Uber Boiler will now ramp the tank temperature from the Prime setting up to the Set Temp while recirculating the water through the Font.
4. When the set temperature is reached the user will rotate the Font Dial counterclockwise to start the flow of water.
5. To select another set temperature the user should press the Prime button – return the unit to the Prime Mode – and repeat step 2 to the new temperature.
6. If a user has several brews/volumes to dispense they should remain in boost mode where possible, otherwise the tank will refill with cold water when you return to Prime and will take approx 2min to heat each 1Litre of water. If you have several brews in a row at different temperatures it is best practice to do your colder brew first and then heat up while still in Boost, as you cannot cool down in boost mode.

### 2.1.2 First Operation:

- Check that all installation procedures have been carried out
- Ensure water valve is on
- Ensure Font Dispense Knob is in the Off position
- Plug boiler into 13A socket and operate the Power Switch – located on the bottom of the boiler
- See Photo 1 for location and name of each feature
- The boiler will take in water to the middle level probe and commence heating. The display will show : PRIME FILL and the TANK TEMP: will show the temperature of the water in the tank.

- Once the temperature reaches the set point, the boiler will continue filling the tank in short bursts to maintain constant temperature. The display will show PRIME READY at this stage and the BOOST button will be enabled.
- Once the water level in the tank has reached the high level probe (full) the heater will turn off and display will show PRIME READY FULL
- The boiler is now ready for use
- Use of the Time and Weigh Features:
  - Time : 00:00 – when the Timer Button is pressed the display will indicate time elapsed in minutes : seconds. This can be used to indicate the brewing time. Pressing the button once quickly will pause the current time which can be restarted again. Pressing the button for more than 2 seconds resets the Timer display to zero.
  - Weight : 0000 – this is in grams. Pressing the Weigh button will reset the weighing scale. The brewing vessel can be placed on the scale/drip tray and the display will show its weight. Pressing the Weight button again will “zero” (tare) the scale so that when the coffee grind is added to the basket, its weight can be displayed. This is to help control the Coffee / Water ratio. 1ml of water weights approx 1gram.
  - 9kg is the max allowable weight on the scales. **DO NOT OVERLOAD**



## 2.2 THE DISPLAY AND CONTROLS

The Display screen contains 4 lines of information:



1. First line on the display shows *status message*:

Status	Description
PRIME FILL	Tank is filling, not heating until reaches the middle level probe. Boost button disabled.
PRIME HEAT	Tank is heating, not filling until temperature in the tank reaches “Prime temp”. Boost button disabled.
PRIME READY	Tank is heating and refilling. Temperature is maintained around “Prime temp” value. Boost button is operational and puts machine into BOOST mode. Tank is not full yet.
PRIME READY FULL	Tank is heated up to the “Prime temp” and reheats once the temperature falls 0.5°C below “Prime temp”. Boost button is operational and puts machine into BOOST mode. Tank is full.
EMPTYING THE TANK	Pump is running allowing to dump all water from the tank through the font. Inlet disabled. Option triggered by pressing PRIME button for more than 5 seconds. Press PRIME again to quit.
BOOST TEMP: xx.x °C	Machine in BOOST mode. Water inlet disabled. Shows the target temperature set by pressing and holding BOOST button. Machine heats up to the set temperature and maintains it within ±0.2 °C. Press PRIME button to go back to PRIME mode.
LOW TANK LEVEL !	Machine in BOOST mode – Tank Level is below 2 litres. Only when in LARGE TANK Mode (Service Set up Menu #8)
Communication error!	Display board lost communication with boiler PCB (can not receive serial data about temperature and level probes). All actions cancelled. Whenever communication is restored, machine will go back to PRIME FILL mode.
---	Top water level probe covered while low level not. Check low level probe for scale. Boost button disabled.
Tank thermistor err!	Tank thermistor disconnected or short circuited. Boost button disabled.
Font thermistor err!	Font thermistor disconnected or short circuited. Boost button disabled.

**2. The second line shows the live readout of:**

- Tank temperature in PRIME mode,
- Font temperature in BOOST mode.

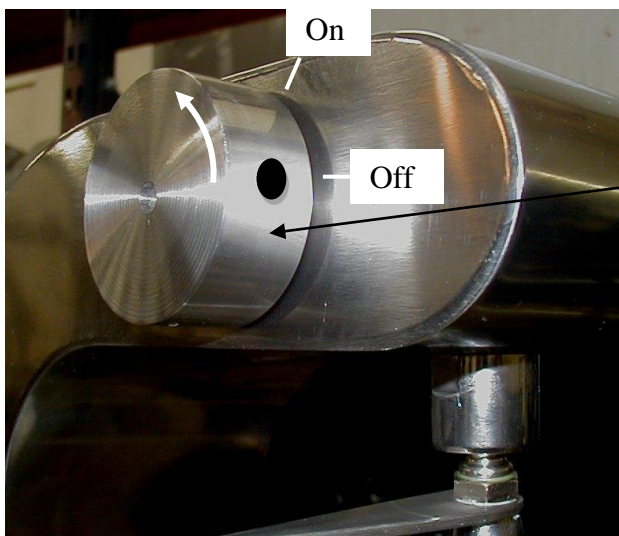
**3. Third line shows the timer**

- Clicking TIMER button turns on and off the timer clock.
- Pressing it for longer than 2 seconds resets it and turns it off.

**4. Fourth line shows measured weight, scaled in grams.**

- Numbers above 9999 can NOT be displayed – “----” will be shown instead.
- Negative numbers will be shown with minus sign (down to -9999).
- Pressing WEIGH button will reset scale to zero.
- Please note that the max weight for the load cell is 4kg and any loads higher than 9kg may destroy it.

**NOTE:** Because the boiler is electronically controlled, no priming is necessary.  
 The element cannot switch on until a safe level of water is reached.



The Font Dial operates anticlockwise to begin the flow of water.

**WARNING:** ALWAYS ENSURE THE DIAL IS SET TO OFF BEFORE PRESSING BOOST OR HOT WATER WILL FLOW IMMEDIATELY.





## 2.3 OPERATION MODES

### 2.3.1 Prime Mode:

After turning on or pressing PRIME button the machine goes into Prime Mode.

This is a stand-by mode when the water is prepared for final dispense.

The tank will fill to the middle level probe (PRIME FILL) and heat up (PRIME HEAT) to the preset temperature (*Prime temp* in calibration). Once the temperature gets above (*Prime temp* - 1°C) the display will show PRIME READY message and the BOOST button will be enabled. From this moment machine will be taking water in short bursts until it fills all the tank (heat fill cycle) and the message PRIME READY FULL will appear.

NOTE: The user may use water even before the tank is full. The amount of water available will be in the range between 2 and 6 litres.

Prime Mode logic is based on thermostatic principal – the water accuracy is around  $\pm 2^{\circ}\text{C}$  from the set point.

Prime Mode status	Description	BOOST button
PRIME FILL	Tank fills to the top probe; heater off.	disabled
PRIME HEAT	Tank heats up to the preset <i>Prime temp</i>	disabled
PRIME READY	Tank temperature above ( <i>Prime temp</i> - 1°C). The tank is still being filled (heat fill cycle).	enabled
PRIME READY FULL	Heat fill cycle finished. Tank is full.	enabled

#### To Empty the Tank.

In the Prime Mode the tank maybe emptied by Pressing and Holding the PRIME button for >5 seconds. This will switch on the Pump – Using the Dial on the FONT the tank may be emptied. To exit this mode press the PRIME button.

**Note:** LARGE TANK setting will empty approx. 8 Litres.

### 2.3.2 Boost Mode:

In Boost Mode the user sets the desired temperature. This is done by pressing BOOST to turn on the pump and then repeatedly pressing the BOOST button to increase the SET TEMP (shown on the screen) in 0.1°C steps (holding down the button will quickly cycle it upwards). The set-up temperature range is between *Prime temp* and *Max temp*.

After setting up the machine, it will start to heat to the desired temperature and will maintain it within  $\pm 0.2^{\circ}\text{C}$ . The SET TEMP may be increased at any time by pressing the BOOST button. Pressing





PRIME button will make the machine go back to Prime Mode and reset the SET TEMP back to *Prime temp*. The machine will refill when in Prime mode and so take time to heat back up again.

The Boost Mode is based on the Advanced Proportional Logic (APLogic™) control algorithm that controls the heating rate to avoid temperature overshoots..

## 2.4 USER SETUP (software ver 1.10)

To change the Prime Temperature setting and the Temperature Unit it is necessary to access the User Setup menu.

To enter User Setup press all four buttons on the front tile and then release them. While pressed the screen will show USER SETUP message in its first line.

Buttons on the left hand side change calibration option (up/down): See options below  
Buttons on right hand side adjust the calibrated value (up/down, press longer to repeat).

Screen view Options 1 – 2	Description	Default value
	Sets temperature at which the element clicks off in prime mode. The turning-on temperature is 0.5 degree below this point.	<b>(89.0 for 2L) (90.0 for 6L)</b>
	Sets temperature measurement units (Celcius / Fahrenheit)	<b>Celcius</b>
	Press TIME button to accept all the settings – they will be stored in the non-volatile memory. To cancel and come back to the previous settings – turn the machine off and on again.	


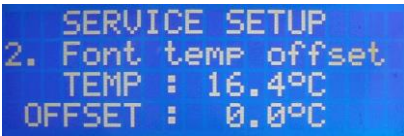

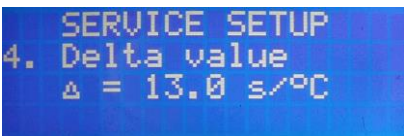
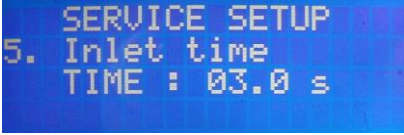
### 3.1 SERVICE SETUP (software ver 1.10)

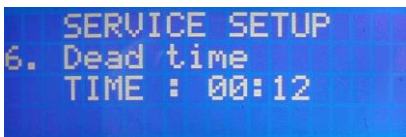
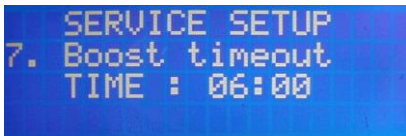
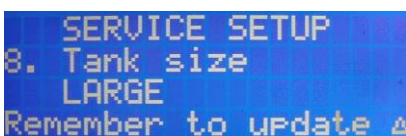
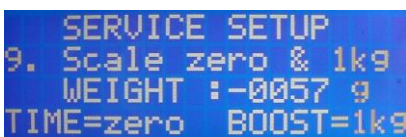
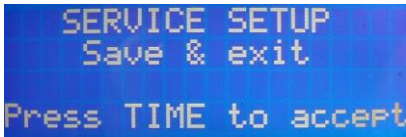
The following information is for Calibration purposes and should not be required for normal use conditions.

To enter calibration mode press all four buttons on the front tile at the same time and hold them until SERVICE SETUP message will appear on the first line of the screen (approx. 5 seconds).

Buttons on the left hand side change calibration option (up/down): See options below

Buttons on right hand side adjust the calibrated value (up/down, press longer to repeat).

Screen view Options 1 – 10	Description	Default value
	Sets offset value for tank temperature sensor. The offset is the difference between absolute temperature and a measured one. It is factory set using calibrated instruments. TEMP shows live readout from tank sensor with the applied offset.	0.0
	Sets offset value for font temperature sensor. The offset is the difference between absolute temperature and a measured one. It is factory set using calibrated instruments. TEMP shows live readout from font sensor with the applied offset.	0.0
	Sets maximum temperature at which the element can be switched on. Both sensors (tank and font) are monitored, if any reading is above set value, the element switches off.	97.5
	Sets heating delta factor. This number tells the software how many energized seconds it will take to heat up the tank by one degree. This number is proportional to the size of the tank and inversely proportional to the power of the element. Setting value too high will make the machine overshoot too much; setting too low will make the process of reaching the set temperature slower. This value must be altered for different tank sizes and different voltages (see next page for info & table)	(8.0 for 2L)  (13.0 for 6L) @230V
	Sets the time for which the inlet opens every time the machine needs water. It minimises temperature fluctuations. The value should be picked to allow 0.5°C cooling after water intake and depends on the tank size and element power. This is a factory setting and should	3.0

	only be changed by trained personnel.	
	Sets dead time (measured in seconds from the beginning of every heating cycle in BOOST mode) when software waits for the tank sensor to record temperature change. Value depends on element time constant and placement of the thermistor. Setting the value too high will make temperature swing too much in BOOST mode; setting too low will make machine overshoot too much.	<b>00:12</b> (for both 2L & 6L,)
	Sets BOOST mode time-out. Timer starts at the beginning of the BOOST mode. Machine goes back to PRIME mode after that time to avoid unit being left in Boost Mode for too long.	<b>06:00</b>
	<p>This sets the tank volume (switching between 2 probes). LARGE is a ~6L drawoff and SMALL is a ~2L drawoff. In SMALL/2L mode the temperature increases faster (e.g. to boost from 90 to 96C will be quicker ). There is no difference in recovery rates, i.e. if you take off 1Litre of water in either mode it takes ~2min for it to heat back to 90C.</p> <p>A 2L setting is typically used when you require lower brew volumes and more varied temperatures between brews.</p>	-
	<p>Calibrates weighing scale. <b>1kg weight is needed. Do NOT press any of the right hand side buttons if you don't have any reference weight!</b> TIMER button sets scale to zero; BOOST button sets new value for 1kg.</p> <p>To recalibrate the scale:</p> <ul style="list-style-type: none"> <li>- empty the weighing platform,</li> <li>- press TIMER button (reset scale to 0),</li> <li>- place 1kg calibration weight,</li> <li>- press BOOST button (set new value for 1kg)</li> </ul> <p>WEIGHT shows live readout of the weight.</p>	
	Press TIME button to accept all the settings – they will be stored in the non-volatile memory. To cancel and come back to the previous settings – turn the machine off and on again.	-



### 3.1.1 Delta Values: [Step 5 in Uber Boiler Calibration]

The default Delta value is based on a 230V power supply and a Large/6L tank volume setting. Varying voltages & volumes require the Delta value to be changed to ensure optimal operation of the machine. The following are optimal settings for different voltages & tank sizes.

	<b>Tank size: SMALL</b>	<b>Tank size: LARGE</b>
<b>Voltage</b>	<b>Delta Value</b>	<b>Delta Value</b>
230V – 240V	6.0	13.0 (default)
208V	7.3	15.9
200V	8.0	17.2



### 3.2 UBER BOILER CALIBRATION INSTRUCTIONS

#### Initial Setup & Weighing Scale Calibration:

Plumb in and turn on the machine, when the machine is turned on the Version number will be shown on the screen (e.g. 1.8).

Enter calibration mode by pressing down all 4 buttons at the same time. Enter your settings as shown on the calibration sheet, some will already be set by default .

1. **Tank Temp Offset:** This will be set later
2. **Font Temp Offset:** This will be set later
3. **Prime Temp:** 90°C (this is your tank standby temp)
4. **Max Temp:** 97.5°C
5. **Delta Value:** 13.0 (this will change to 8.0 if a customer requests a preset 2L tank or if they are operating at a different voltage it will be a different value –see R&D)
6. **Inlet Time:** 00:03
7. **Dead Time:** 00:12
8. **Boost Timeout:** 06:00
9. **Weighing Scale:** Ensure the weighing scale platform is level with the tile and is sitting square in the tile (i.e. equal spacing around the 4 sides), make sure it cannot be moved by gently trying to rotate it. Use a 1kg reference calibration weight to calibrate the scale. When nothing is on the scale platform press Timer to set zero. Now place the 1kg weight on the scale and press Boost to set the 1kg reading. Now remove the weight and place the 100g calibration weight on the scale and note the reading on the test bench form, now replace the 1kg weight and note the reading on the form. If either is off by more than 1g then recalibrate and test again, if still off see R&D.
10. **Tank Size:** LARGE (this is 6L, it could be set to small if a customer requests it preset.)
11. **Save & Exit:** Once settings are correct press Time to save.

### 3.3 UBER BOILER INTERNAL PLUMBING

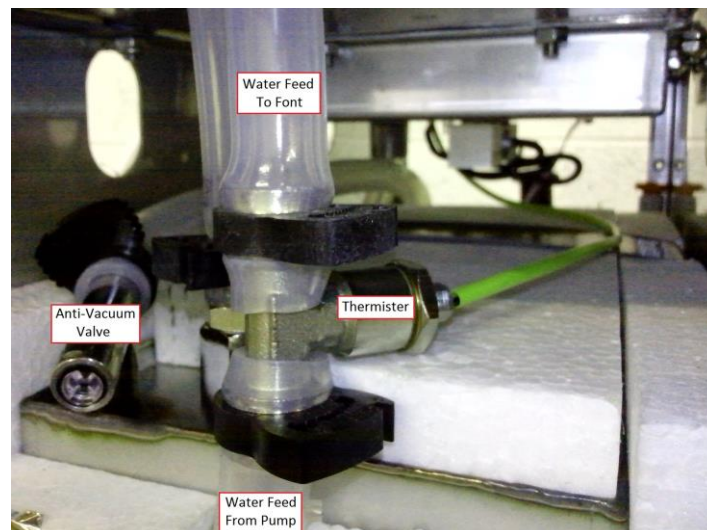
Below is a picture of the top of the tank. The first tube on the left is the tank vent which attaches to the drip tray to vent out any steam.

The middle tube is the recirculation tube feeding back into the tank. You can see the position of the ball valve handle on this tube. This is approximately the position to give a good flow rate. If dispense flow is low and there does not appear to be a kink in the tubing, you could try adjusting this ball valve for more or less dispense pressure from the font.

By moving the lever to the left (more inline with the pipe) it will open up the valve more. This will result in more water returning to the tank and a lower flow rate from the font. It would also allow foreign objects to pass through if there is debris in the tubes.

By pushing the lever downwards, it will close the valve. It should not be closed completely as this would stop circulation in the system completely. It would, however, increase the flow rate from the font.

The last tube on the right is the tube from the pump. The thermistor (thermometer) is in the metal T-piece. This is the tube which could be pushed up or pulled down slightly to relieve any kinks at the bottom.

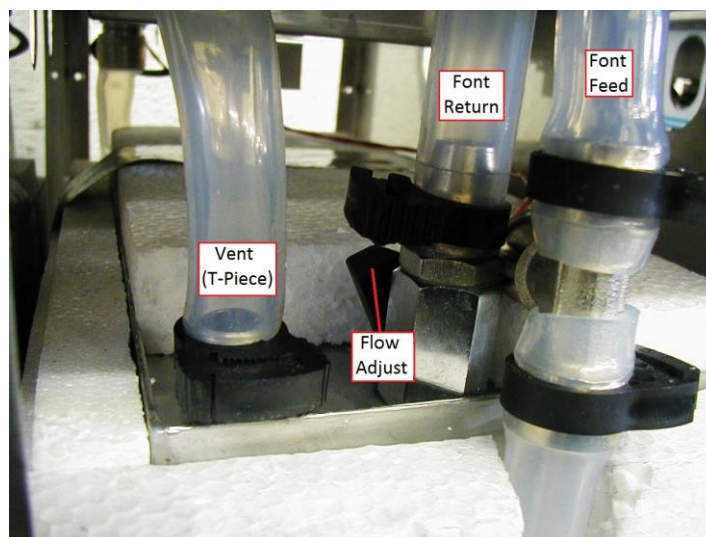


#### 3.3.1 Flow Rate Adjustment:

The ball valve on the back of the tank should be set to the approximate position as shown below. When the tank is full (displaying PRIME READY FULL) press Boost and change up to 94.5-95.5°C. Place an empty container on the scale and zero the scale. Fully open the dispense dial on the font and at the same time start the timer, close the dial after 20seconds. Note the weight of the water, if it is out



of the 650-850g range, then adjust the ball valve. Turning the valve handle up so it is inline with the pipe (open) will decrease flowrate from the font. Now screw on the back panel ensuring the hose is not kinking. Repeat the 20second flow test (this is to ensure the hose is not kinked or compressed after the back panel is in place).



### 3.3.2 Temperature Calibration :

The flow rate must be calibrated before the temperatures as a low flow rate will effect temperature readings. The thermometer used must be calibrated each day by R&D, who will sign the test bench form.

The thermistors should be calibrated between 93-96°C. When the tank is full press Boost and set to 95.5°C, and leave it pumping/circulating for several minutes to ensure an even temperature throughout the tank. Now press all 4 buttons to enter calibration mode.

Go to option 2 to first calibrate the Font thermistor. hold the wire thermometer probe under the spout about 10-20mm and set it to note the max reading, now dispense about 1L of water and adjust the offset until the current reading matches the max temp recorded on the thermometer. It is important to allow time for the probe to heat up to give the true max reading so pour slowly at first and then faster.

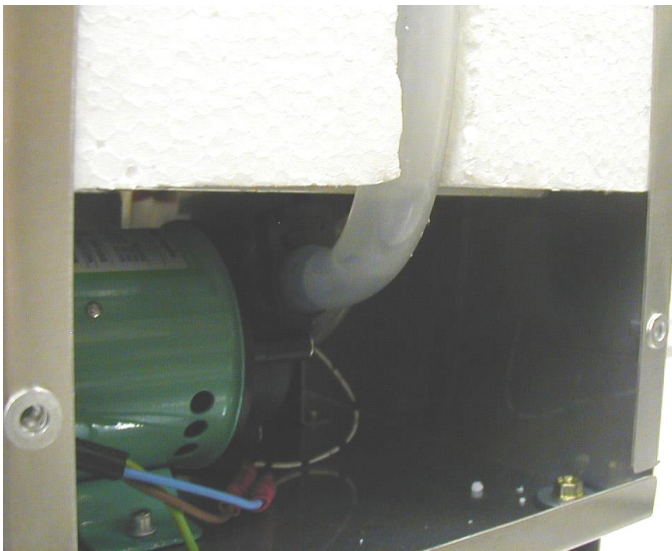
While in calibration mode the tank will not heat so it will be slowly dropping in temperature so you must act quickly when setting your offset to match the max temp reading.

The font thermistor is far more sensitive than the tank thermistor, since it is now calibrated you can use it to set the tank temp. There is a temperature drop of 0.5°C between the tank and font outlet (i.e. the tank is always 0.5°C hotter). While in calibration mode you can note the current font temp

readout and quickly scroll back to option 1 to set the tank temperature. e.g. if your calibrated font temp is 95°C then set your tank to 95.5°C.

If either thermistor offset is greater than  $\pm 1^{\circ}\text{C}$  then the thermistor should be replaced and recalibrated. If the font thermistor is out of range, it must be replaced before calibrating the tank temperature.

Scroll to the "Save & Exit" option and press Time to Save.



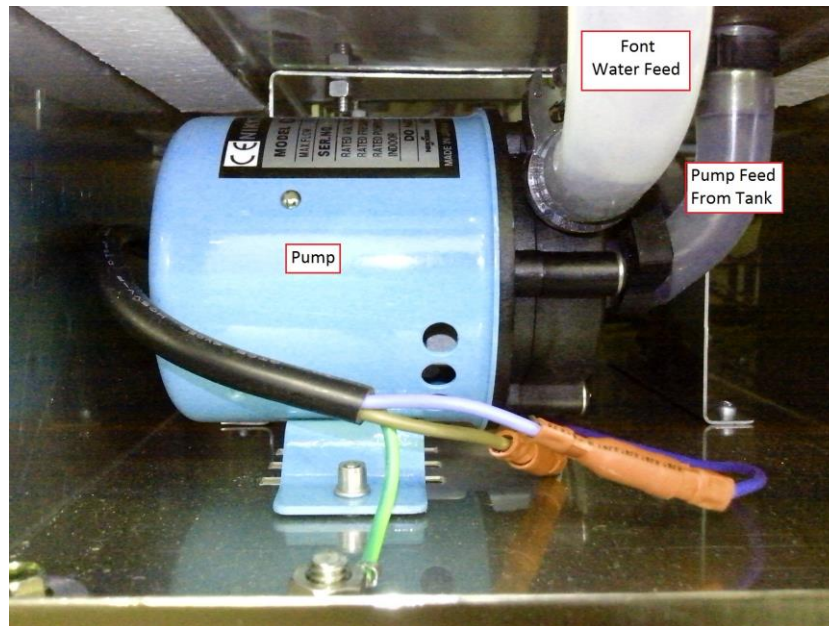
Above are photos of the tube feeding from the pump into the tank

The photo below shows the pipe bending up towards the font. This is the tube which is most likely to have a kink in it. When the back panel is put in place it could press against the tube and cause a kink. If there is a kink you can try to squeeze the tub and reposition it to remove the kink. If it is too long or too short you can try to gently pull or push this tube near the font area to make it slacker or tighter to remove the kink.



### 3.4 UBER BOILER PUMP REPLACEMENT

Remove the back panel for access to the Nikkiso pump. In the photo below, the water feed from the tank and the pump outlet tube going up to the font can be clearly seen.



To replace the pump, remove the two mounting screws from the pump mounting bracket.

Release the tube clamps and remove the input and output tubing from the pump.

Disconnect the pump wiring at the bullet connectors.

Install the replacement pump using the steps above in reverse order.

**Note:** The orientation of the pump head may need to be changed to the orientation shown above.

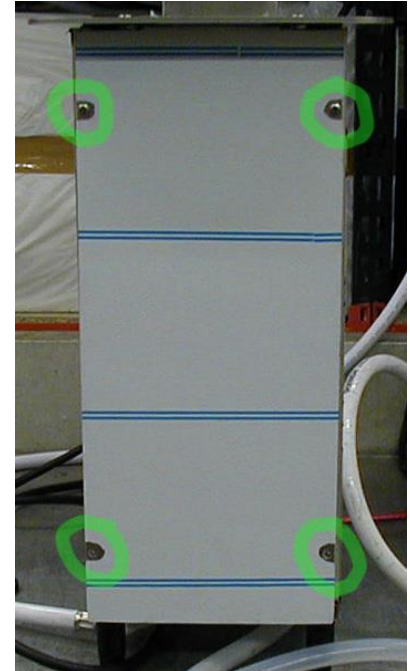
To change the orientation of the pump head, remove the four retaining screws, rotate the head to the required position and replace the four retaining screws.

### 3.5 DISPLAY BOARD REPLACEMENT PROCEDURE

**Note:**

Prior to replacing the Display, it is recommended that the current settings for the Uber Boiler are recorded so that they may be reset with the new Display. The New Display contains factory settings which may or may not have been changed by the user. Special notice should be made of the Temp Offset settings. These should be the factory settings, as they are to do with the optimum operation of the Boiler and should not be changed by the user.

See Service Setup Section for details of how to review the boiler settings.



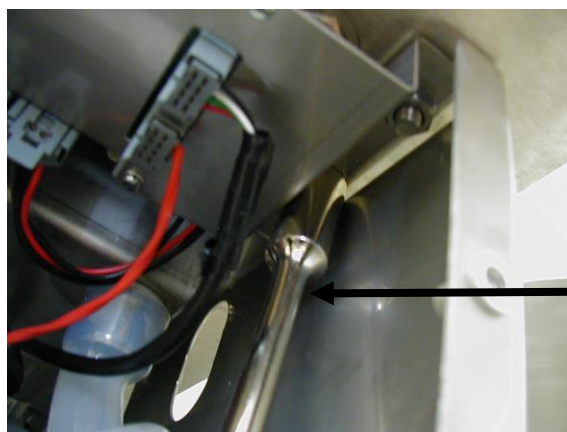
Front Boiler panel  
Access screws highlighted

#### 3.5.1 Disconnecting the Machine:

Turn off the machine and unplug it at the mains and allow it to cool completely. Remove the front service panels, unscrew the 4 screws on each panel and they should drop off.

#### 3.5.2 Removing and Replacing the Display Board Bracket:

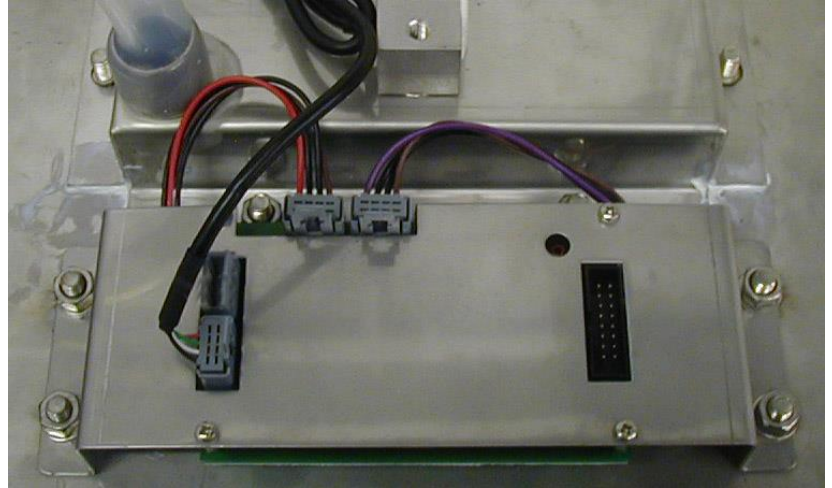
Unplug all 5 connections from the PCB, you must gently push the plastic tabs back and then pull the connections out. Unscrew the 4 M6 nuts using a 10mm socket driver, be careful as the screen will fall away when all screws are removed.



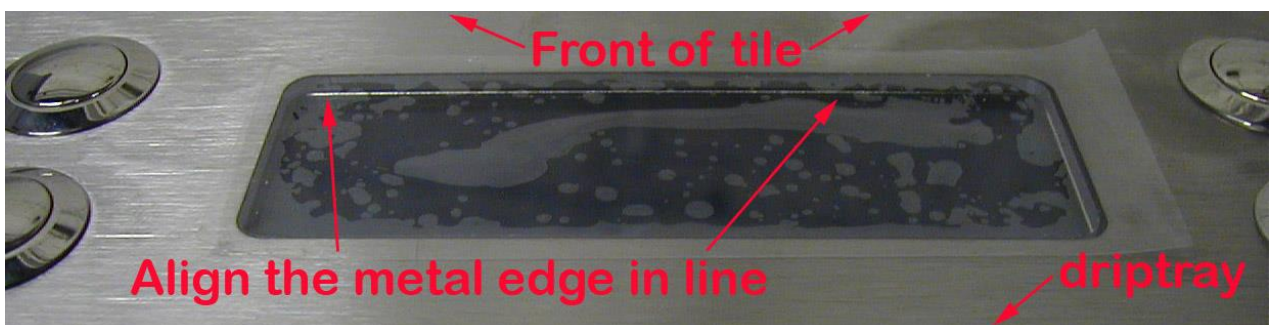
10mm  
Socket  
Driver

Remove the transparent protective plastic from the PCB screen. Attach the new screen using the same nuts making sure the orientation is the same but do not fully tighten the nuts yet. There may

have been washers on the old display bracket but these are not essential and would be difficult to replace, so you can just use the M6 nuts.



To make sure your new display is centred & straight look at an angle into the window and see that the metal border on the display is in line with the metal line on the tile. It is OK for the metal border to be slightly visible on the edge furthest away from the drip tray/scale. This is since a user is viewing the screen from an angle and will not see this border when looking at the machine from the front



When the display is aligned correctly, tighten up the 4 nuts underneath. Now replace all connections as before.

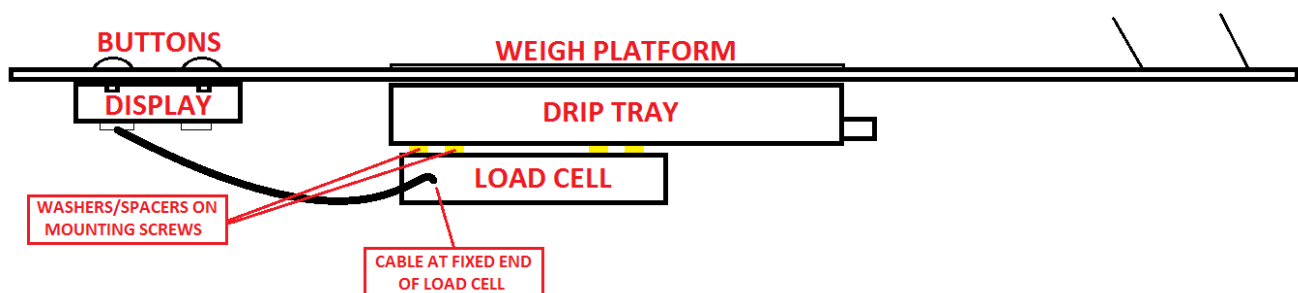
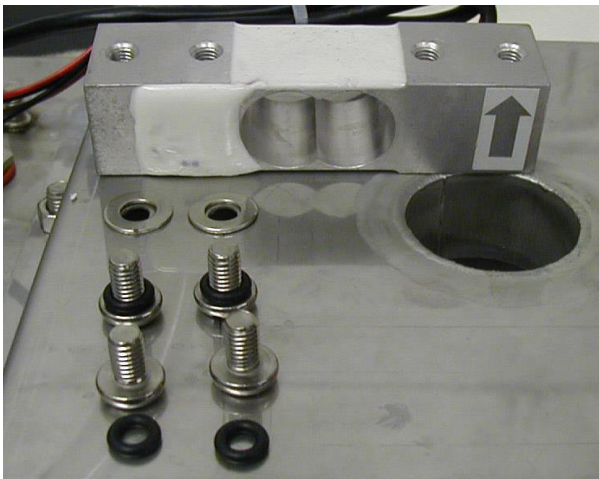


### 3.6 UBER BOILER LOADCELL REPLACEMENT

Remove the Display Board Bracket, as described previously.

#### 3.6.1 Loadcell Attachment to Tile:

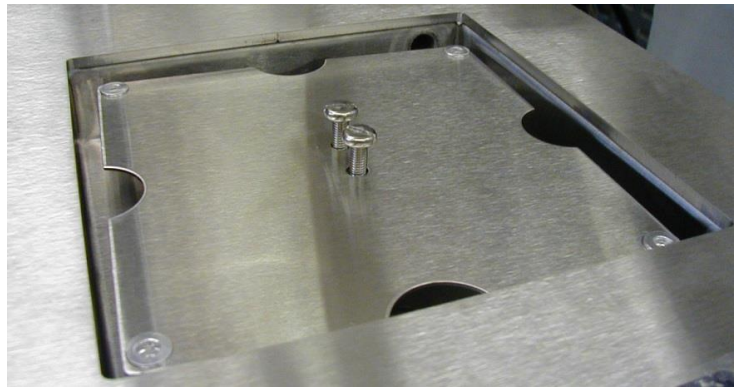
Ensure the loadcell has the connector crimped on. Place 2 x O-rings on the 2 x M5 screws and place 2 x M6 washers between the load cell and the mounting plate. Tighten the 2 x M5 screws into the threaded holes on the loadcell, as shown below. Do not over-tighten the screws or the O-rings will squash out the side. The O-rings are needed to ensure a watertight seal. The washers are needed to provide operational clearance between the load cell and mounting plate. Note the arrow mark on the loadcell showing which way the load is to be applied. Ensure visually that the holes are centrally in line with the 32mm diameter hole in the drip tray.



#### 3.6.2 Fixing Support Platform to Loadcell:

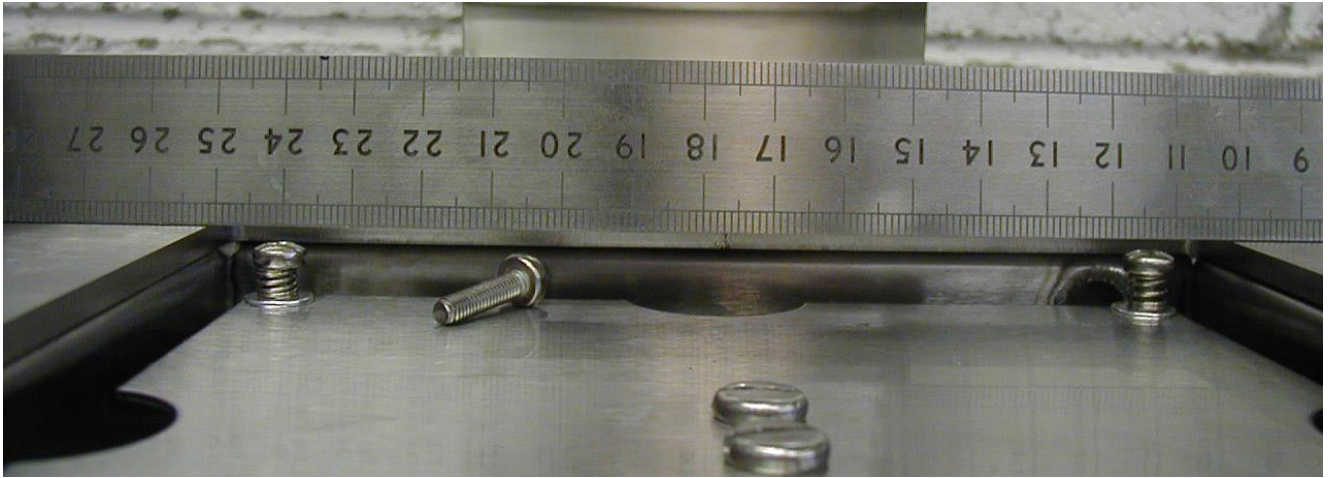
Ensure the platform support is fully sanded and that M4 rivet nuts are attached. Pass the 2 x M5 screws through the top and through the plastic spacers. Now place it on the loadcell and loosely begin to screw them in, locating the threaded holes in the loadcell. Be careful not to press down hard with the screwdriver and overload the loadcell which should only be subjected to 5kg of force or it will break. When it is level and ready to be tightened, place the 4 spacers around the sides and

tighten it fully. Again be careful not to press down too hard. The spacers will keep it central. Any suitable spacers can be used to centre the platform.



### 3.6.3 Platform Adjustment Screws:

Place springs on the 16mm nylon screws and screw them into the rivet nuts. Use a ruler or other straight edge to visually ensure all 4 screw heads are level and approximately 2mm below the surface of the tile –be careful not to scratch the tile. (Nylon screws should be used even though stainless steel screws are shown in the photo).



Replace the service panel and the machine is ready to use. The machine will require the weighing scale to be recalibrated.

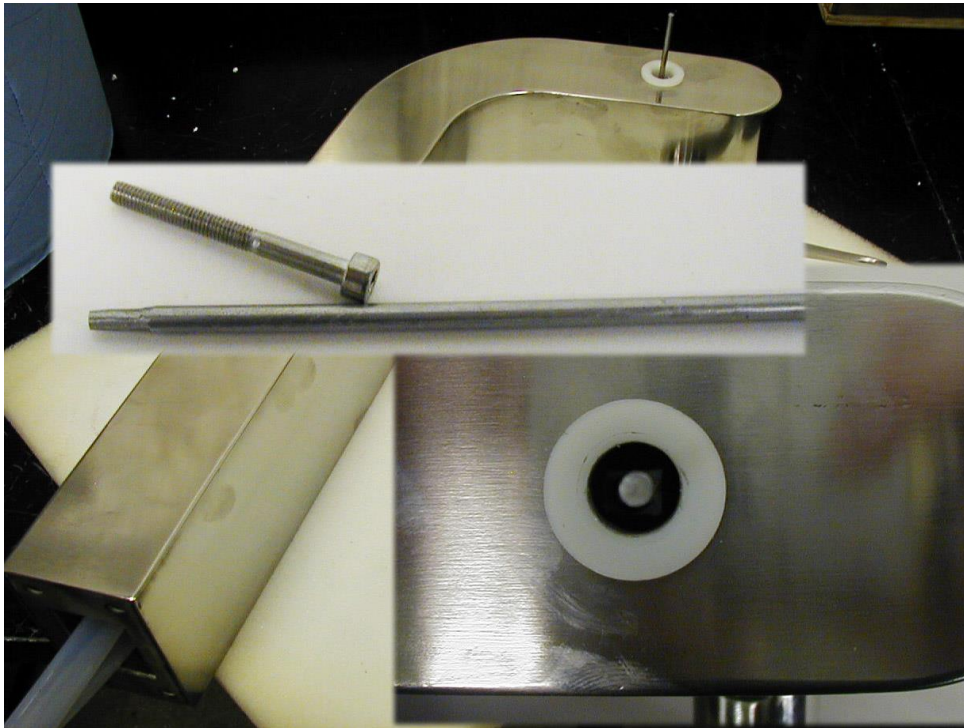
#### 3.6.4 Font Dial Replacement:

Place the font on a large sponge to prevent scratching. Check the dial is polished and sanded fully and can turn in the ball valve and the slide bearing freely. Insert the slide bearing into the font side.



Check the position of the ball valve using the guide rod as shown.

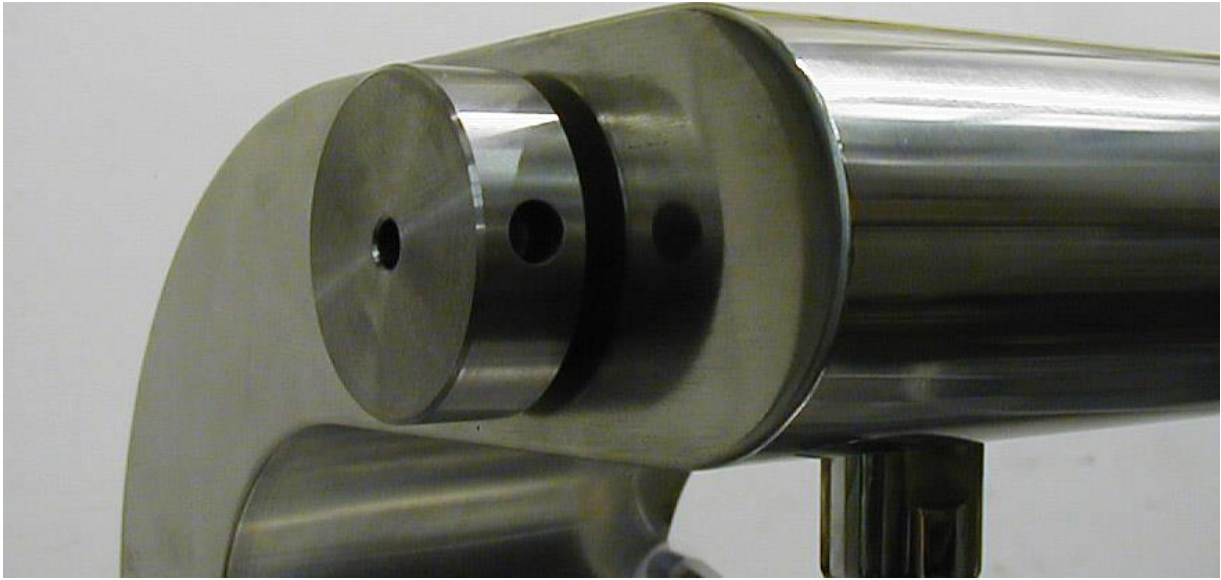




At this point the valve can be moved freely toward, or away from, the front of the font. When aligned properly, insert the dial using the guide rod to locate it onto the mating ball valve. The black dot on the dial should be visible from the front of the machine in the closed position and visible from the top when open. Look down from the top of the font (not the front) and visually examine the dial to see if the dial is parallel to the side of the font. Move the valve forward or back until it is aligned parallel. When parallel, lock the valve in place firmly using a 22mm spanner. Make sure the spanner is covered in tape or otherwise protected to prevent scratching the font.

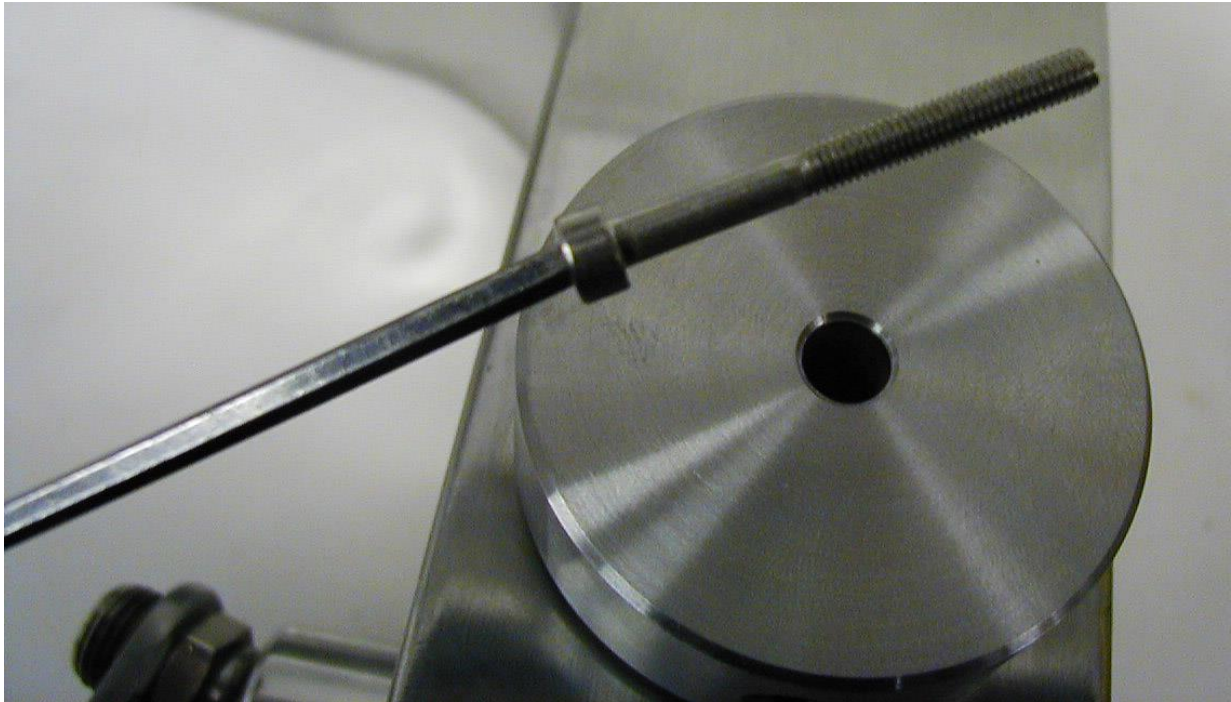


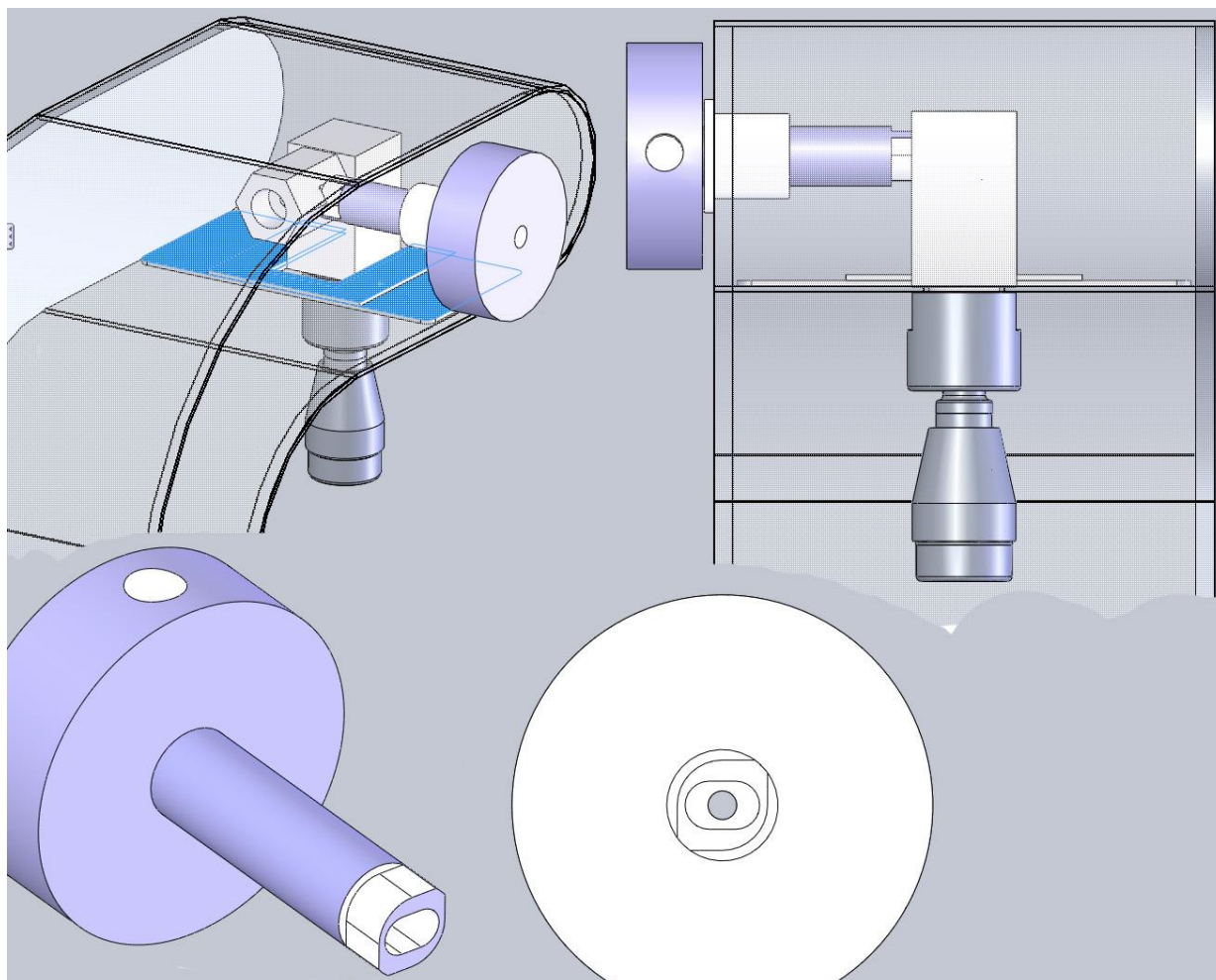
Look at the front from the front to check the dial is parallel with the sides. If this is not parallel then the metal must be bent slightly to adjust it. To do this, remove the dial and slide bearing (the fitting should be fully locked in place at this stage). Now insert a strong screwdriver and lever the fitting up or down until it appears aligned. Refit the slide bearing and dial, and confirm that it's parallel.





When it is parallel in both directions insert the socket head screw to secure the dial in place.





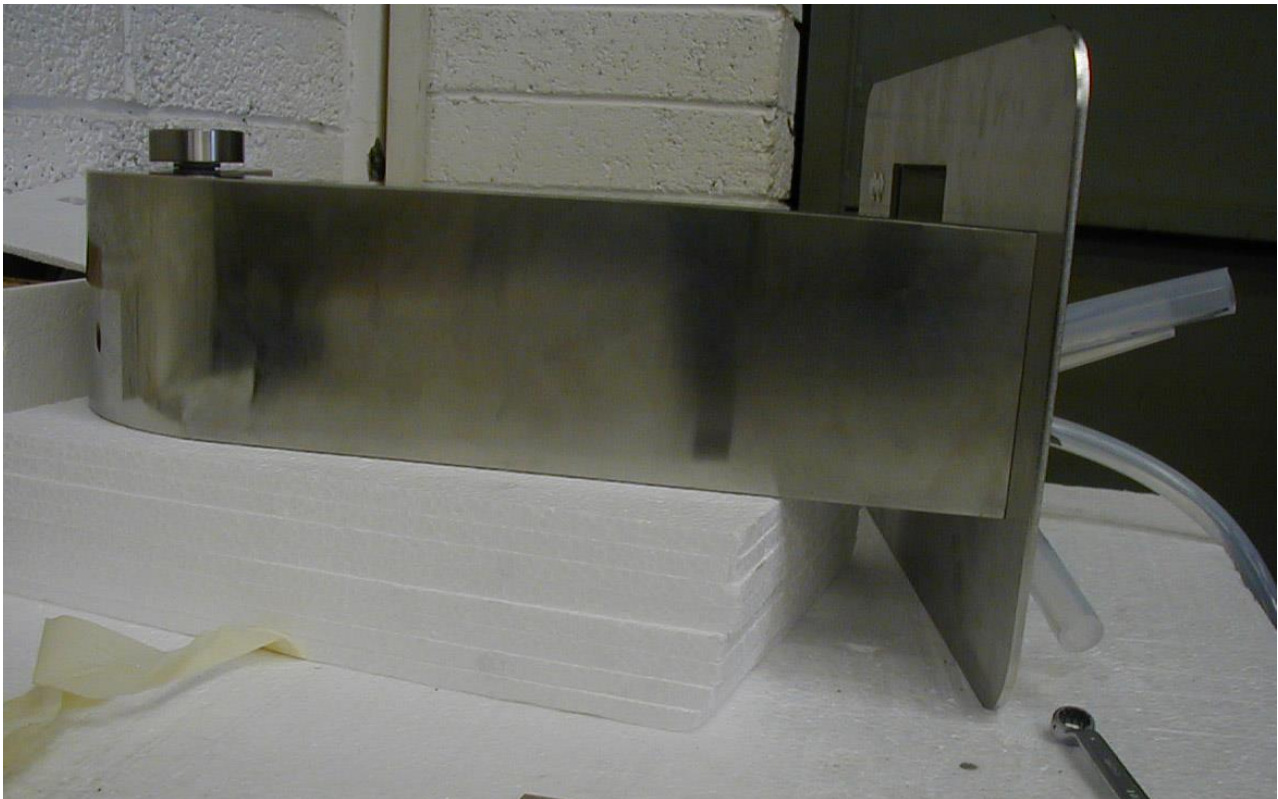
To remove the Uber Font Dial and spindle connected to the Font head ball valve, loosen the grub screw, accessible from the centre of the Dial.

If the ball valve is found to be dripping/leaking, check that the spindle is not worn, allowing the ball valve to rotate past the Off position.

When refitting the ball valve/nozzle assembly, use the nylon slide bearing on the spindle to centre the assembly before tightening the fittings.

### 3.7 FONT TO TILE INSTALLATION INSTRUCTIONS

Make sure all parts are on clean sponges or polystyrene to stop scratching. Build up a platform so the font can rest on its side at the correct height to be bolted onto the tile.

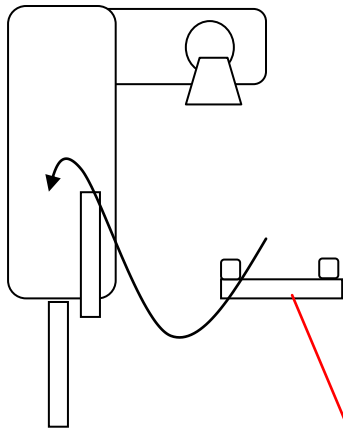


Now place tape around the 4 sides of the opening in the tile to prevent the tubes rubbing off the bare metal cut-out.

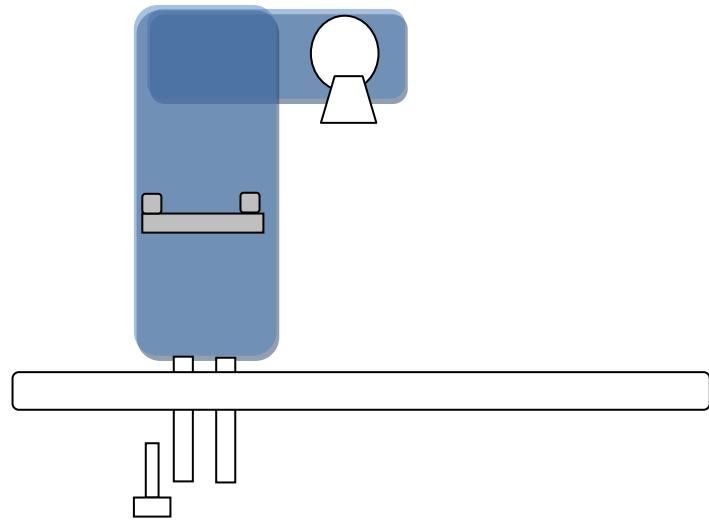
Insert the locking bracket into the bottom of the Font.(see diagram on next page).

Carefully place the Font against the tile. Loosely screw in the 4 bolts.

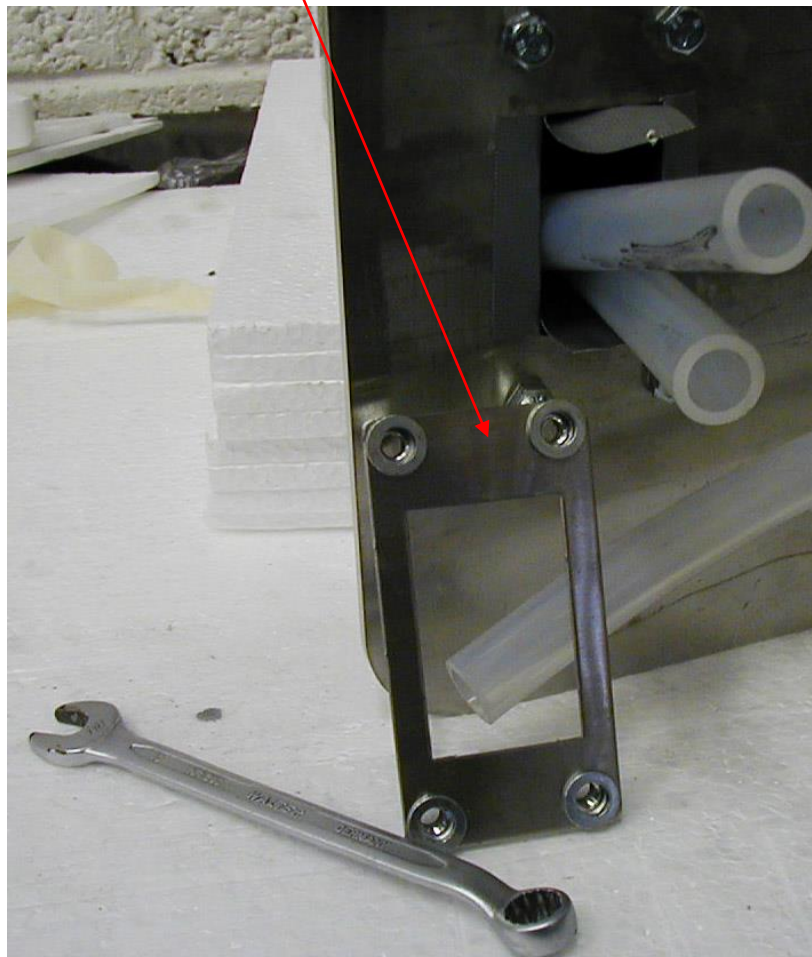




Insert locking bracket  
inside bottom of the Font

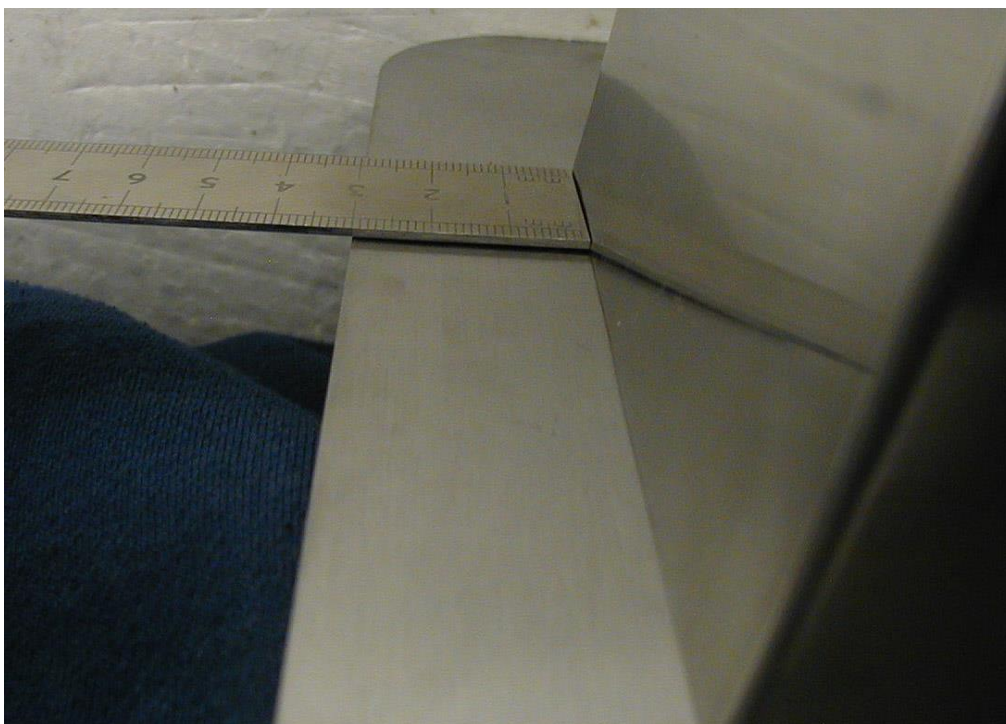
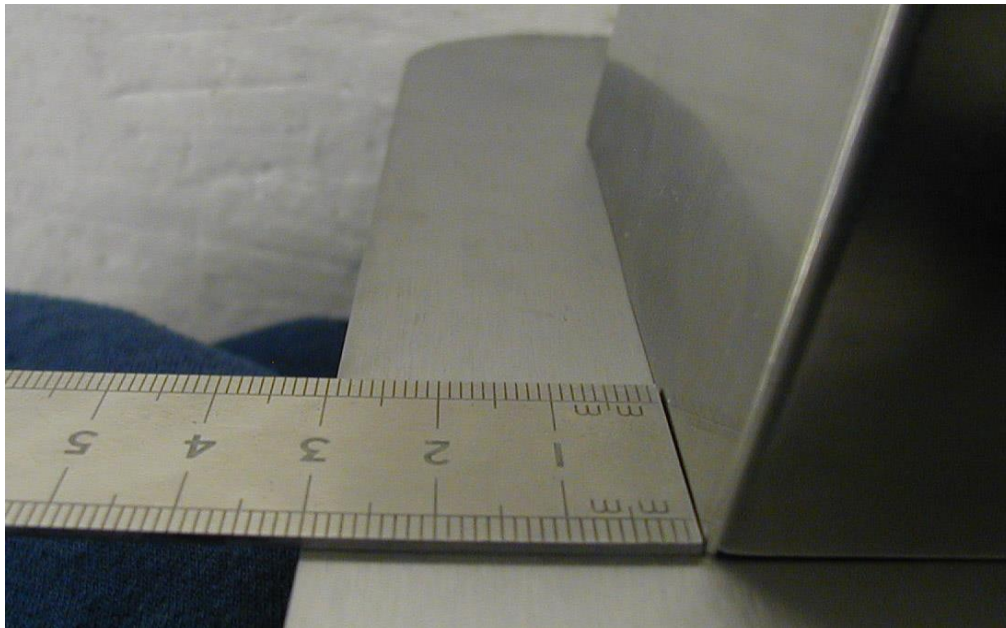


Loosely screw in 4x M6 bolts



### 3.7.1 Aligning the Font on the Tile:

Check that the back of the font is square with the tile, to do this measure the distance from the edge of the tile to the font, it should be equal on both left and right corners, the dimension itself is not important. When confirmed square, fully tighten the 4 bolts down.



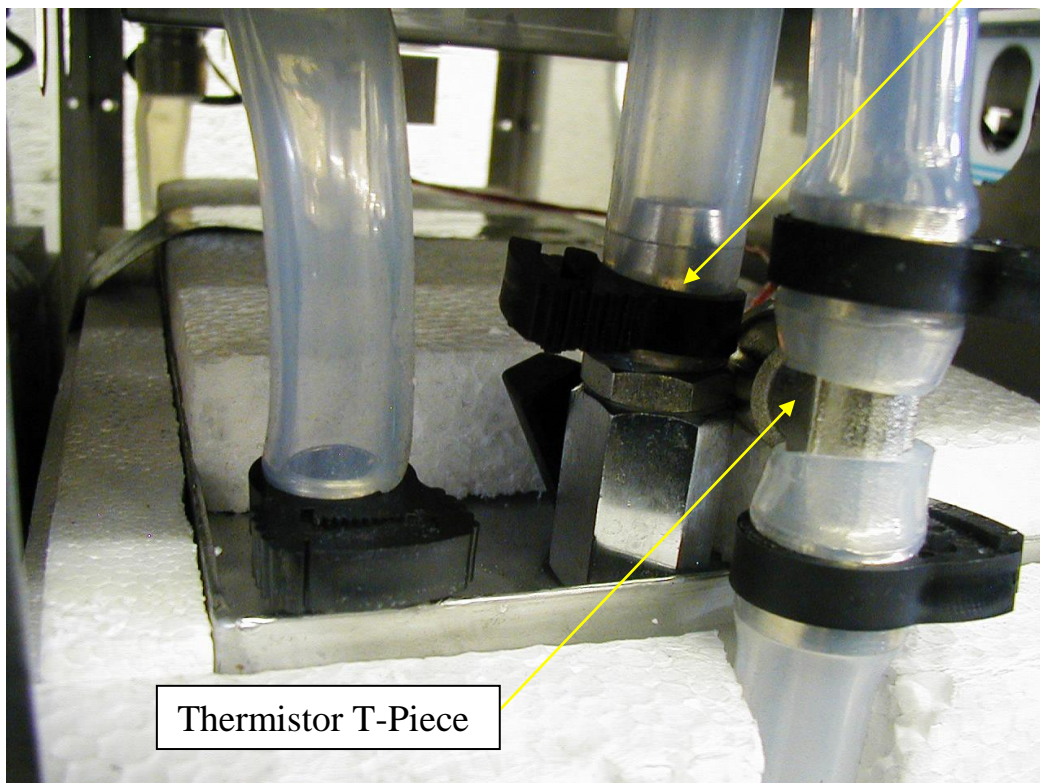


### 3.7.2 Connecting the Font Tubing:



Tape on edges to stop damage to tubes during installation

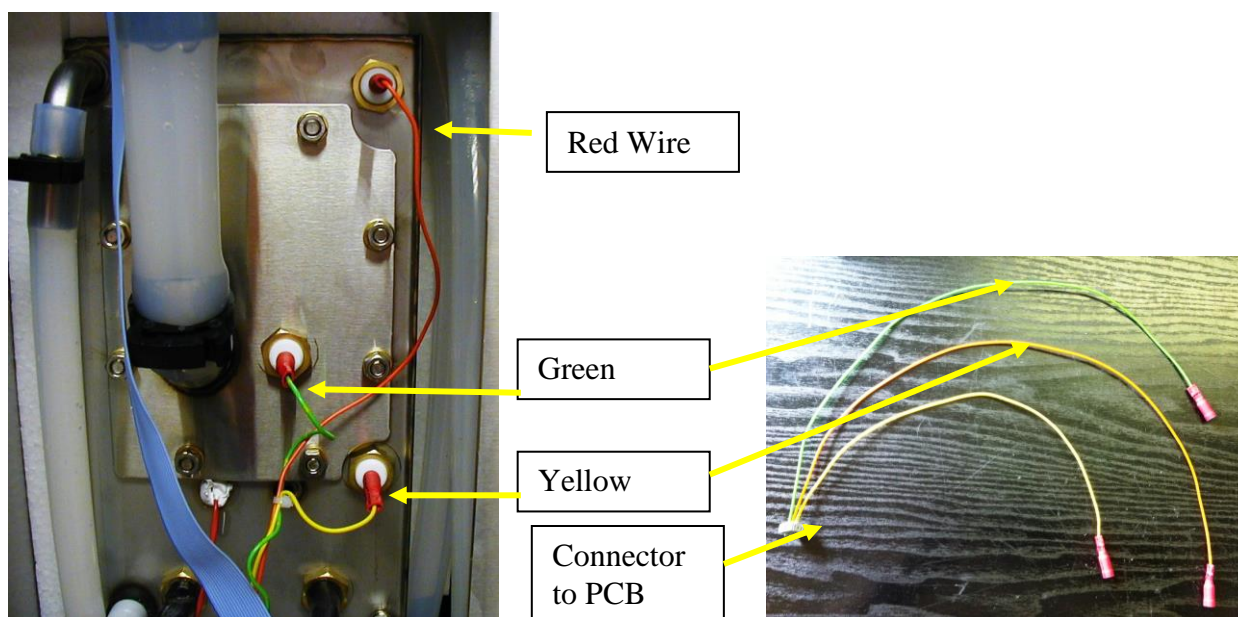
Connect the return silicone tube marked black to the ball valve on the tank. Connect the other font tube to the thermistor tee piece. Connect the drip tray overflow to the tank overflow. Secure all hoses with plastic hose clips, F clips on the tank tit and ball valve, G clips on the Tee piece. Ensure the hose clips are turned in towards the tank so they do not crash against the surround panel.



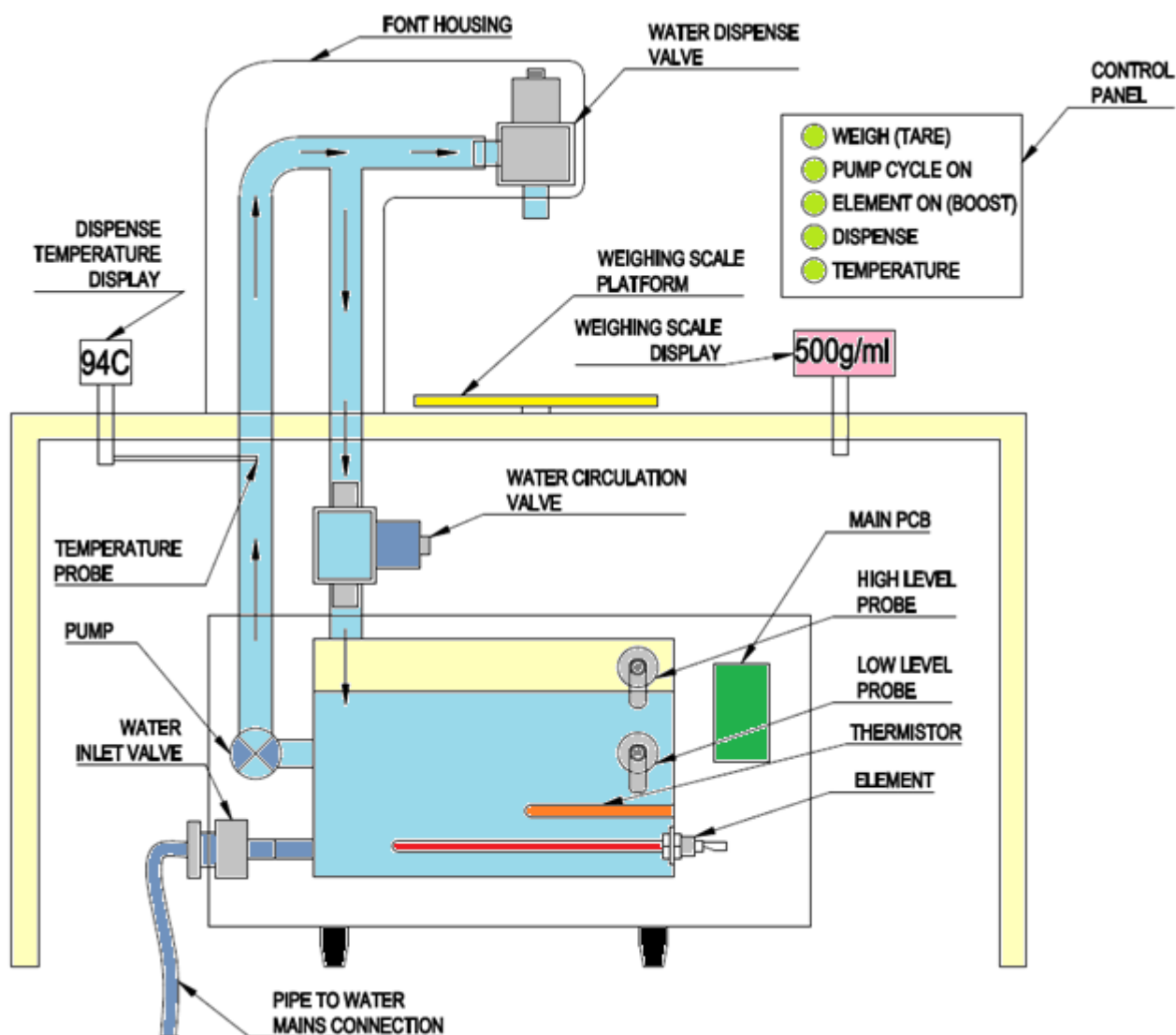
Thermistor T-Piece

### 3.8 WATER LEVEL PROBES INSTALLATION INSTRUCTIONS

The new software requires that the 3 level probes are connected if the Uber already has the 3 probes connected no change is required. In earlier version of the Uber Boiler only 2 probes may have been connected. This kit contains a probe wiring loom, see below. This should be connected to the Probes as in the photo below. Top probe is Red Wire, Middle probe is Green Wire and bottom Probe is Yellow Wire.

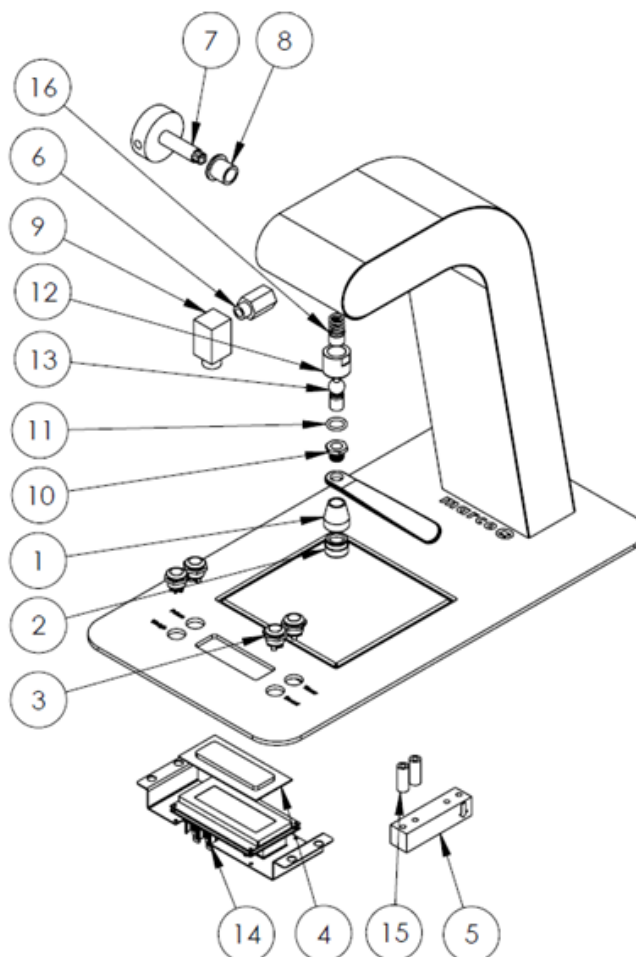


## 4.1 Über Boiler Functional Diagram

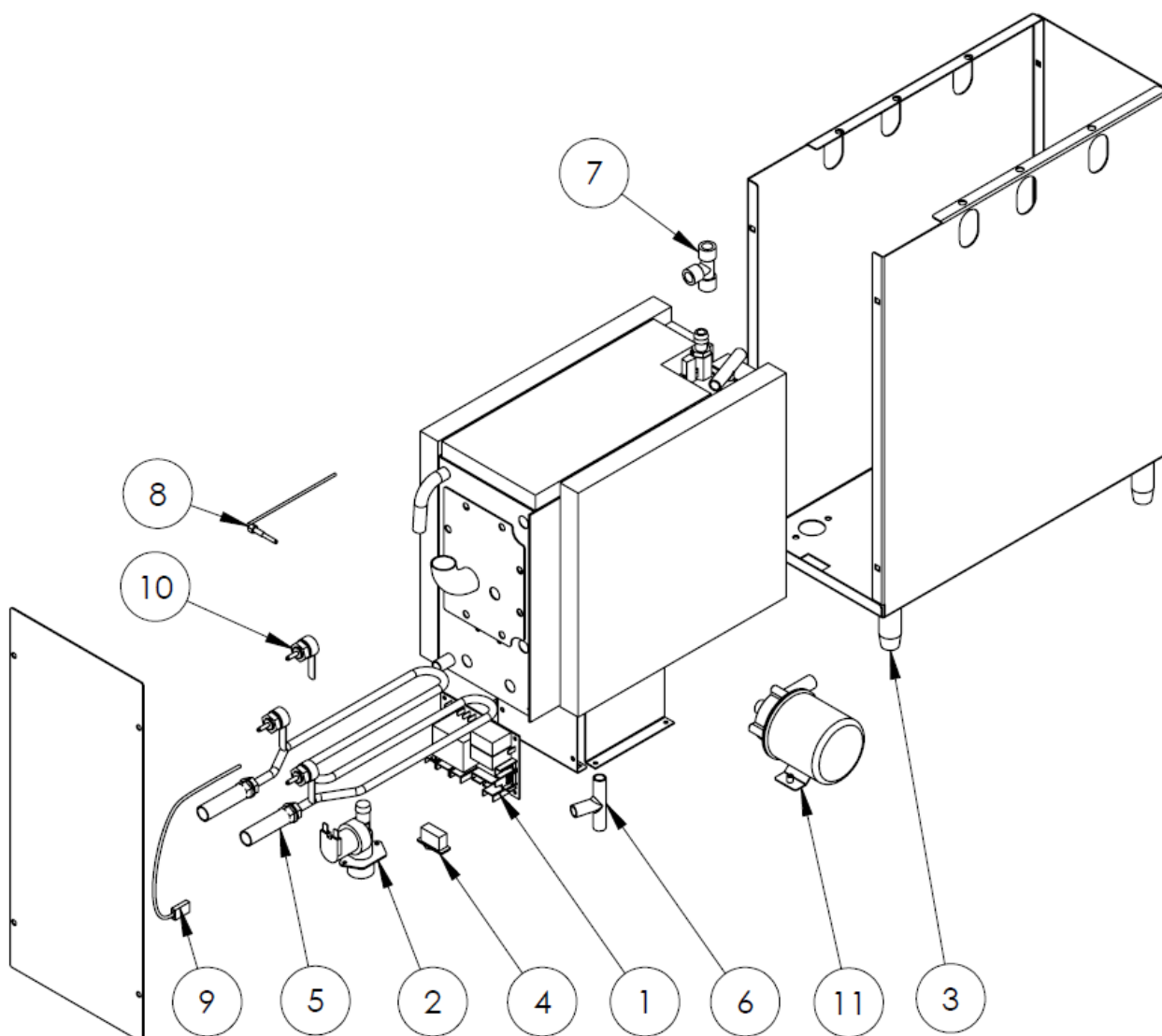




## 4.2 Spare Parts Schematic



Item No.	Part No.	Description	Qty
1	1400090	Adaptor Aerator	1
2	2100010	Aerator Tomlinson M2052a	1
3	1501218	Push Button Metal Domed 16mm	4
4	1800149	Uber Display Window	1
5	1503001	Load Cell 5Kg M5 with Connector	1
6	2100350	Drain Valve 1/4" BSP	1
7	2200684	Flow Control Dial Uber	1
8	1801680	Bearing Slide Nylon 12.5 x 18 x 24 x 18 x 2	1
9	1400695	Elbow 1/4" BSP Female x 3/8" BSP Male	1
10	1400065	Adaptor 1/8" F x 1/4" M (Gauge)	1
11	1800760	O-Ring for Sight Glass	1
12	70115	Fastener - Ball Socket	1
13	70137	Ball Head - Steam Pipe	1
14	1600405	PCB Uber Display 4 x 20 Characters	1
15	1401873	Spacer Polystyrene 5.2 x 10 x 25	2
16	66885	Steam Spout Set	1



Item No.	Part No.	Description	Qty
1	1600354	PCB Ecoboiler Slave	1
2	1502190	Valve Inlet Solenoid 240V 3/4" BSP	1
3	1700310	Leg 50mm Nylon 22mm Diameter	4
4	1501216	Switch Power On/Off	1
5	1500975	Element 2.8kW 230V M-Shape Long	1
6	1402216	T-Piece 1/2" 36 x 60mm	1
7	1402214	T-Piece 1/4" BSP F Equal Chrome	1
8	1600692	Thermister M5 Brass Submersible	1
9	1600691	Thermister Assembly	1
10	2301463	Probe Assembly Sub-Con (40mm Tab)	3
11	1501540	Pump Nikkiso	1
12	1800993	Water Level Probes Wiring Harness	1

## 4.3 Electrical Schematic

